Leveraging Mindsets to Promote Academic Achievement

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Leveraging Mindsets to Promote Academic Achievement:

Policy Recommendations

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Abstract

The U.S. must improve its students' educational achievement. Race, gender, and social class gaps persist, and, overall, U.S. students rank poorly among peers globally. Scientific research shows that students' psychology—their "academic mindsets"—have a critical role in educational achievement. Yet policymakers have not taken full advantage of cost-effective and well-validated mindset interventions. We present two key academic mindsets. The first, a growth mindset, refers to the belief that intelligence can be developed over time. The second, a belonging mindset, refers to the belief that people like you belong in your school or in a given academic field. Extensive research shows that fostering these mindsets can improve students' motivation, raise grades, and reduce racial, gender, and social class gaps. Of course, mindsets are not a panacea, but with proper implementation they can be an excellent point of entry. We show how policy at all levels (federal, state, and local) can leverage mindsets to lift the nation's educational outcomes.

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Relative to other countries assessed by the Organization for Economic Co-operation and Development (OECD), U.S. students score below average in math literacy (30th among 54 nations) and average in science (23rd) and reading literacy (20th)[1]. Moreover, American students' average achievement level has not improved over the past decade (OECD, 2013), and race, gender, and social class achievement gaps persist (U.S. Department of Education, 2015). It is clear that the U.S. must improve educational outcomes, not only to benefit individual students, but also to increase national economic growth, social well-being, and global competitiveness (Council of Economic Advisors, 2015; Hanushek & Wöessmann, 2007).

We draw policymakers' attention to an underutilized intervention strategy: changing students' academic mindsets. As opposed to interventions that focus on structural factors (e.g., class or school size) or curricula, often with mixed results (Fullan, 2007; Howley & Howley, 2010), academic mindset interventions highlight the critical role that the psychology of the student plays in determining educational outcomes (Walton, 2014). We focus on students' mindsets about academic ability ("Can my intelligence be developed?") and academic settings ("Do people similar to me belong in this school or this field?"). Academic mindsets are powerful when implemented correctly: they can lift grades and motivation, particularly among struggling students, and they can reduce racial, gender, and social class achievement gaps (e.g., Blackwell, Trzesniewski, & Dweck, 2007; Stephens, Hamedani, & Destin, 2014; Walton & Cohen, 2011). They can also be relatively low cost to implement (see Paunesku, 2013, for cost analyses) and can be readily adapted for large-scale implementation (Paunesku et al., 2015). Although academic mindsets will not answer all the challenges

facing education, they reliably benefit students and therefore merit greater attention from policymakers.

Academic Mindset #1: Is my intelligence fixed or can it be developed?

Some students view intelligence as fixed, something that they cannot change (a *fixed mindset*), whereas others view intelligence as malleable, something that they can develop over time (a *growth mindset*; Dweck, 1986, 2006). Growth mindsets foster greater learning and achievement in students from elementary school through college, especially during challenging transitions or in difficult courses (Blackwell et al., 2007; Paunesku, et al., 2015). This is because students with growth mindsets seek to learn and develop their abilities, and thus pursue challenges, value effort, and are resilient to setbacks; in contrast, students with fixed mindsets avoid challenges (which could reveal "permanent" deficiencies), dislike effort (which they think signals low ability), and give up more easily when facing setbacks (which they view as evidence of low ability) (Blackwell et al., 2007; Butler, 2000; Hong, Chiu, Dweck, Lin, & Wan, 1999; Robins & Pals, 2002). A survey of all 10th grade students in Chile showed that students' mindsets predicted their academic achievement as strongly as family income or other standard economic indices (Claro, Paunesku, & Dweck, 2015).

Growth mindsets especially benefit underperforming students, underrepresented minorities, and women in math and science (Aronson, Fried, & Good, 2002; Good, Aronson, & Inzlicht, 2003; Good, Rattan, & Dweck, 2012; Paunesku, 2013; Paunesku et al., 2015). Therefore, growth mindsets can narrow achievement gaps.

Maximize Students' Learning and Achievement by Fostering Growth Mindsets.

Growth mindsets can be taught through in-school (Blackwell et al., 2007) or online (Paunesku et al., 2015) programs in which students learn that intellectual abilities can be developed over time through hard work, better learning strategies, and help from others. For example, students learn that the brain is like a muscle that grows stronger with rigorous exercise, and that every time they take on challenges and persist, the neurons in their brain grow new, stronger connections. Students then learn to apply these lessons in their schoolwork (Blackwell et al., 2007).

Growth mindset training improved math grades among diverse seventh graders in New York City public schools (Blackwell et al., 2007). Growth mindset encouragement woven into Khan academy's online math units – reminding students before each problem that working on new kinds of problems helps their math brain to grow or that the more they practice math the smarter they become – raised the number of problems students solved correctly, the number of subsequent math units completed, and how many problems they correctly solved on subsequent units (Yeager, Paunesku, Walton, & Dweck, 2013). Integrating growth mindset principles into an online math game enhanced students' persistence and use of adaptive strategies (O'Rourke, Haimovitz, Ballweber, Dweck, & Popovic, 2014).

College students who received growth mindset training achieved higher end-of-year GPAs, and, notably, minority students with growth mindset training on average performed as well as non-minority students without training (controlling for SAT scores, Aronson et al., 2002). Moreover, the benefits of growth mindset training have replicated with large samples of high school, community college, and university students across the U.S. who received as little as one or two online mindset sessions (Paunesku et al,

2015; Yeager et al., 2013). This means that the time, effort, and cost of scaling up can be minimized, while still delivering faithful and psychologically potent interventions.

Academic Mindset #2: Do I belong here?

Another key academic mindset is whether students feel a sense of "belonging" in their school or academic field. Many students feel uncertain about belonging, and this can be acute for students from negatively stereotyped groups (Willms, 2003). Belonging concerns are associated with lower achievement and higher dropout rates (Osterman, 2000; Walton & Cohen, 2007). However, when underrepresented students feel that academic settings value people like them, they exhibit less stress during academic challenges (Murphy, Steele, & Gross, 2007), report better mental and physical health (Walton & Cohen, 2011), and earn higher grades (Walton, Logel, Peach, Spencer, & Zanna, 2014). Women in college calculus courses who had stronger (vs. weaker) belonging mindsets expressed significantly greater interest in higher-level math courses (Good et al., 2012). Thus, environments that promote belonging mindsets among negatively stereotyped students can narrow achievement gaps and encourage students to further pursue disciplines in which they are underrepresented.

Maximize Students' Learning and Achievement by Fostering Belonging Mindsets.

Students are more likely to feel that they belong when academic environments communicate growth mindsets (Good et al., 2012) and do not contain stereotypical objects and messages (Cheryan, Plaut, Davies, & Steele, 2009). In one study, minority students learned that older students (both majority and minority students) had similarly

felt concern about belonging when they first arrived on campus, but had developed a greater sense of belonging to college over time. The minority students who received this message reported feeling greater academic fit at school and later achieved higher GPAs than minority students who did not receive this message (Walton & Cohen, 2007). In fact, this intervention halved the racial achievement gap among college students (Walton & Cohen, 2007; 2011). In another study, information sessions where underrepresented students discussed belonging-relevant experiences later eliminated the social class achievement gap (Stephens et al., 2014).

Policy Implications

Policymakers can advocate, prioritize, and implement growth and belonging mindsets. Some policymakers (e.g., U.S. Secretary of Education, state commissioners, local superintendents) have, as a first step, developed their understanding of how and why mindsets help young people thrive by reading relevant material (e.g., Dweck, 2006), examining existing programs (e.g., www.mindsetkit.org), or engaging with mindset researchers (e.g., Yeager et al., 2013). Others, including President Obama and First Lady Michelle Obama, have highlighted the importance of academic mindsets by vividly describing growth mindsets (B. Obama, 2014; M. Obama, 2013) and belonging mindsets (M. Obama, 2014) in their speeches.

Policymakers can make effective academic mindset practices a funding priority in existing (e.g., the Race to the Top Initiative) and new programs (e.g., the newly announced Skills for Success Grant). Federal grant programs can prioritize the funding of state proposals that include the development and testing of large-scale, age-

appropriate mindset programs. These can be mindset programs delivered directly to students or programs in which educators incorporate mindset messages in their pedagogy. They can also be programs that integrate mindset messages into online platforms (e.g., through the federal ConnectED Initiative).

The Department of Education can identify academic mindsets as a "major issue" in U.S. education, which would open up many possible courses of action. For example, this would afford policymakers the opportunity to create a national discourse around academic mindsets, perhaps by sponsoring national conferences on the topic. It would also incentivize the adoption of validated growth and belonging mindset programs by schools and colleges, education nonprofits, and state education agencies that apply for Department of Education funding. The Department might find opportunities to include mindsets in its surveys (e.g., National Assessment of Educational Progress, National Household Education Survey) to further study their relation to student achievement.

State and local policymakers, including commissioners, superintendents, and principals, have the challenge and opportunity of implementing broad-scale mindset interventions on the ground in the schools. They might look for ways of integrating mindset messages with existing initiatives. For example, in the future, validated belonging interventions might be delivered in the context of social-emotional learning curricula, and validated growth mindset programs might be used in the context of the new, challenging Common Core curriculum, or during orientation activities as students make the transition to high school or college (see Yeager et al., 2013).

These policymakers and educators could also favor textbooks, curricula and learning materials that engender these mindsets (by, for example, rewarding hard work,

the trying of different strategies, appropriate help-seeking, and improvement) or could

encourage publishers to develop such materials. They could also ask whether current

grading practices capture only students' performance, or also their "process" (seeking

challenges, showing resilience) and growth over time. Then, policymakers could

encourage schools to create and implement grading practices that, in addition to

capturing performance, also highlight and reward students' challenge seeking,

perseverance, and improvement over time (as some schools have now done).

We know that educators can transfer their mindsets to students (Rattan, Good, &

Dweck, 2012). Therefore the development and validation of training materials for

teachers and administrators (both those in training and those working in schools) will be

essential, perhaps with support from federal initiatives focused on developing pedagogy

(e.g., the President's RESPECT Project). These programs should (a) give educators a

deep understanding of key academic mindsets, (b) motivate them to integrate mindsets

in their classrooms, and (c) provide them with validated curricula, activities, or

intervention materials that they can use to do so.

Any large-scale implementation of academic mindset programs must be paired

with rigorous testing because ineffective implementation of even well-validated practices

is all too common and fails to yield results (Sun, 2015). We recommend that

policymakers encourage schools or communities that want to implement mindset

interventions to partner with academic researchers to empirically evaluate the

consequences of growth and belonging mindset programs for students' motivation,

teachers' experiences, and overall school achievement. These evaluations might

suggest how to tailor programs for student- and school-specific needs. These data can

be captured within the Department of Education's "What Works Clearinghouse" to equip educators, administrators, and policymakers across the country with academic mindset practices that effectively meet the needs of their students.

Conclusion

The psychology of the student is key to academic achievement. In this paper, we have presented two academic mindsets—the belief that your intelligence can be developed and the belief that you belong in your school or discipline. We have shown their direct impact on students' educational outcomes, and we have described interventions that address and promote them. Further, we have suggested how policymakers can implement academic mindset practices in schools to promote widespread improvements in achievement.

This, of course, is not an exhaustive review. For example, the question of how mindsets are communicated in the home (Gunderson, Gripshover, Romero, Dweck, Goldin-Meadow, & Levine, 2013), and how policymakers can help parents to promote productive mindsets, requires further attention and research. Ongoing research is also identifying other beneficial academic mindsets that may further inform policymakers' efforts to improve education, such as students' sense of purpose (Paunesku et al., 2015, Yeager, et al., 2014), and beliefs about whether all students have high potential (Rattan, Savani, Komarraju, Boggs, & Ambady, 2015; Rattan, Savani, Naidu, & Dweck, 2012). We hope to see a growing collaboration between researchers and policymakers who share the goal of supporting student learning and achievement.

There are many needs that must be met in order to create high quality education across the nation (e.g., high quality teaching, ample school resources). We counsel

policymakers, as part of this effort, to capitalize on academic mindsets to enhance

student achievement and, thus, to foster the nation's growth, well being, and

competitiveness.

Footnotes

[1] The Organization for Economic Co-Operation and Development is composed of 34 member nations and over 70 non-member nations and provides a forum in which governments work to promote economic growth, prosperity, and sustainable development (see http://usoecd.usmission.gov/mission/overview.html for more information). The OECD runs the Programme for International Student Assessment (PISA) every three years in countries that elect to be involved to assess educational systems based on 15-year-old students' reading, math, and science knowledge.

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